

```

1  tgggacaggcagctccggggtccgcggtttcacatcggaaacaaaacagcggctgggtctg
   -----+-----+-----+-----+-----+-----+-----+ 60
   accctgtccgtcgaggccccaggcgccaaagtgtagcctttgttttgtcgccgaccagac
   G  Q  A  A  P  G  S  A  V  S  H  R  K  Q  N  S  G  W  S  G  -
61  gaaggaacctgagctacgagccgcggcggcagcggggcggcggggaagcgtatacctaata
   -----+-----+-----+-----+-----+-----+-----+ 120
   cttccttggactcgatgctcggcgccgcccgtcgccccgcggcccccttcgcataatggatta
   R  N  L  S  Y  E  P  R  R  Q  R  G  G  G  E  A  Y  T  *  S  -
121  ctgggagcctgcaagtgacaacagcctttgcggtccttagacagcttggcctggaggaga
   -----+-----+-----+-----+-----+-----+-----+ 180
   gaccctcggacgttcactgtttgtcggaaacgccagggaatctgtcgaaccggacctcctct
   G  S  L  Q  V  T  T  A  F  A  V  L  R  Q  L  G  L  E  E  N  -
181  acacatgaaagaaagaacctcaagaggcctttgttttctgtgaaacagtatttctatacag
   -----+-----+-----+-----+-----+-----+-----+ 240
   tgtgtactttctttcttggagttctccgaaacaaaagacactttgtcataaagatatgtc
   T  *  K  K  E  P  Q  E  A  L  F  S  V  K  Q  Y  F  Y  T  V  -
241  ttgctccaatgacagagttacctgcaccgttgtcctacttccagaatgcacagatgtcttg
   -----+-----+-----+-----+-----+-----+-----+ 300
   aacgagggttactgtctcaatggacgtggcaacaggatgaagggtcttacgtgtctacagac
   A  P  M  T  E  L  P  A  P  L  S  Y  F  Q  N  A  Q  M  S  E  -
301  aggacaaccacctgagcaatactgtacgttagccagaatgacaatagagaacggcaggagc
   -----+-----+-----+-----+-----+-----+-----+ 360
   tcctgttgggtggactcgttatgacatgcacgcggcttactgttatctcttgccgtcctcg
   D  N  H  L  S  N  T  V  R  S  Q  N  D  N  R  E  R  Q  E  H  -
361  acaacgacagacggagccttggccaccctgagccattatctaatggacgaccccgaggta
   -----+-----+-----+-----+-----+-----+-----+ 420
   tgttgctgtctgcctcggaaaccggtgggactcggtaatagattacctgctgggggtcccat
   N  D  R  R  S  L  G  H  P  E  P  L  S  N  G  R  P  Q  G  N  -
421  actcccggcagggtgggtggagcaagatgaggaagaagatgaggagctgacattgaaatatg
   -----+-----+-----+-----+-----+-----+-----+ 480
   tgagggccgtccaccacctcgttctactccttcttctactcctcgactgtaactttatac
   S  R  Q  V  V  E  Q  D  E  E  E  D  E  E  L  T  L  K  Y  G  -
481  gcgccaaagcatgtgatcatgctctttgtccctgtgactctctgcatgggtgggtggtcgtgg
   -----+-----+-----+-----+-----+-----+-----+ 540
   cgcggttcgtacactagtagagaaacagggacactgagagacgtaccaccaccagcacc
   A  K  H  V  I  M  L  F  V  P  V  T  L  C  M  V  V  V  V  A  -

```

FIG.1A

ctaccattaagtcagtcagcttttataacccggaaggatgggcagctaatctataaccccat
 541 -----+-----+-----+-----+-----+-----+-----+ 600
 gatggtaattcagtcagtcgaaaaatagggccttcctacccgctcgattagatatggggta
 T I K S V S F Y T R K D G Q L I Y T P F -
 tcacagaagataccgagactgtgggccagagagccctgcactcaattctgaaatgctgcca
 601 -----+-----+-----+-----+-----+-----+-----+ 660
 agtgtcttctatggctctgacacccggctctcgggacgtgagttaagacttacgacgggt
 T E D T E T V G Q R A L H S I L N A A I -
 tcatgatcagtgctattgttgtcatgactatcctcctgggtggttctgtataaaataggt
 661 -----+-----+-----+-----+-----+-----+-----+ 720
 agtactagtcacagtaacaacagctactgataggaggaccaccaagacatatttatgtcca
 M I S V I V V M T I L L V V L Y K Y R C -
 gctataagggtcatccatgcctggcttattatatactctctattgttgctgttcttttttt
 721 -----+-----+-----+-----+-----+-----+-----+ 780
 cgatattccagtaggtacggaccgaaataatagtagagataacaacgacaagaaaaaaaa
 Y K V I H A W L I I S S L L L L F F F S -
 cattcatttacttgggggaagtgtttaaaacctataacgttgctgtggactacattactg
 781 -----+-----+-----+-----+-----+-----+-----+ 840
 gtaagtaaatgaacccccctcacaaattttggatattgcaacgacacctgatgtaatgac
 F I Y L G E V F K T Y N V A V D Y I T V -
 ttgcactcctgatctggaattttgggtgtggtgggaatgatttccattcactggaaagggtc
 841 -----+-----+-----+-----+-----+-----+-----+ 900
 aacgtgaggactagaccttaaaaccacaccaccttactaaaggtaagtgaacctttccag
 A L L I W N F G V V F M I S I H W K G P -
 cacttcgactccagcaggcatactctcattatgattagtgccctcatggccctgggtgtttta
 901 -----+-----+-----+-----+-----+-----+-----+ 960
 gtgaagctgaggtcgtccgtatagagtaatactaatcacgggagtagccgggaccacaaat
 L R L Q Q A Y L I M I S A L M A L V F I -
 tcaagtacctccctgaaatggactgctggtcctatcttggctgtgatttcagtatatgatt
 961 -----+-----+-----+-----+-----+-----+-----+ 1020
 agttcatggaggggacttacctgacgcaccgagtagaaccgacactaaagtcatatactaa
 K Y L P E W T A W L I L A V I S V Y D L -
 tagtggctgttttgtgtccgaaagggtccacttcgtatgctgggttgaaacagctcaggaga
 1021 -----+-----+-----+-----+-----+-----+-----+ 1080
 atcaccgacaaaaacagggctttccagggtgaagcatacgaccaactttgtcgagtcctct
 V A V L C P K G P L R M L V E T A Q E R -

FIG.1B

1081 gaaatgaaacgctttttccagctctcattttactcctcaacaatgggtgtggttgggtgaata 1140
 -----+-----+-----+-----+-----+-----+-----+
 ctttacttttgcgaaaaagggtcgagagtaaatgaggagttgttaccacaccaaccacttat
 N E T L F P A L I Y S S T M V W L V N M -
 1141 tggcagaaggagacccggaagctcaaaggagagtatccaaaaattccaagtataatgcag 1200
 -----+-----+-----+-----+-----+-----+-----+
 accgtcttccctctgggaccttcgagtttccctctcataggtttttaagggttcataattacgtc
 A E G D P E A Q R R V S K N S K Y N A E -
 1201 aaagcacagaaagggagtcacaagacactgttgcagagaatgatgatggcgggttcagtg 1260
 -----+-----+-----+-----+-----+-----+-----+
 tttcgtgtctttccctcagtgttctgtgacaacgtctcttactactaccgccccagtcac
 S T E R E S Q D T V A E N D D G G F S E -
 1261 aggaaatgggaagcccagagggacagtcatactagggcctcatcgctctacacctgagtcac 1320
 -----+-----+-----+-----+-----+-----+-----+
 tccttacccttcgggtctccctgtcagtagatccccggagtagcgagatgtggactcagtg
 E W E A Q R D S H L G P H R S T P E S R -
 1321 gagctgctgtccaggaactttccagcagtatcctcgctgggtgaagacccagagggaaaggg 1380
 -----+-----+-----+-----+-----+-----+-----+
 ctcgacgacaggtccttgaaaggctcgatagggagcgaccacttctgggtctcctttccc
 A A V Q E L S S S I L A G E D P E E R G -
 1381 gagtaaaacttggattgggagatttcattttctacagtgttctgggttggtaaagcctcag 1440
 -----+-----+-----+-----+-----+-----+-----+
 ctcattttgaacctaacctctaaagtaaaagatgtcacaaagaccaaccatttcggagtc
 V K L G L G D F I F Y S V L V G K A S A -
 1441 caacagccagtgagagactggaacacaaaccatagcctgtttcgtagccatattaattgggtt 1500
 -----+-----+-----+-----+-----+-----+-----+
 gttgtcgggtcacctctgacctgtgttgggtatcggacaaagcatcggtataattaaccaa
 T A S G D W N T T I A C F V A I L I G L -
 1501 tgtgccttacattattactccttgccattttcaagaaagcattgccagctcttccaatct 1560
 -----+-----+-----+-----+-----+-----+-----+
 acacggaatgtaataatgaggaacggtaaaagttctttcgtaacgggtcgagaagggttaga
 C L T L L L L A I F K K A L P A L P I S -
 1561 ccatcacctttgggcttggtttctactttgccacagattatcttgtacagccttttatgg 1620
 -----+-----+-----+-----+-----+-----+-----+
 ggtagtggaaacccgaacaaaagatgaaacgggtgtctaatagaacatgtcggaaaaatacc
 I T F G L V F Y F A T D Y L V Q P F M D -

FIG.1C

2161 agaatggggaatggagaggtagggcaggggtccagcttccctttgattttttgctgcaga 2220
 -----+-----+-----+-----+-----+-----+-----+
 tcttacccttacccttccacccgtccccaagggtcgaagggaactaaaaaacgacgtct
 N G E W R G G Q G F Q L P F D F L L Q T -

2221 ctcatcctttttaaatgagacttggtttccctctctttgagtcagtcataatgtaga 2280
 -----+-----+-----+-----+-----+-----+-----+
 gaggtaggaaaaatttactctgaacaaaaggggagagaaactcagttcagtttatacatct
 H P F * M R L V F P S L * V K S N M * I -

2281 ttgcctttggcaattcttcttctcaagcactgacactcattaccgtctgtgattgccatt 2340
 -----+-----+-----+-----+-----+-----+-----+
 aacggaaaccgttaagaagaagagttcgtgactgtgagtaatggcagacactaacggtaa
 A F G N S S S Q A L T L I T V C D C H F -

2341 tcttcccaaggccagctctgaacctgaggttgctttatcctaaaagttttaacctcaggtt 2400
 -----+-----+-----+-----+-----+-----+-----+
 agaagggttccggtcagacttggactccaacgaaataggattttcaaaattggagtccaa
 F P R P V * T * G C F I L K V L T S G S -

2401 ccaaattcagtaaaatttggaaacagtacagctatttctcatcaattctctatcatgttg 2460
 -----+-----+-----+-----+-----+-----+-----+
 ggtttaagtcattttaaaccctttgtcatgtcgataaagagtagttaagagatagtacaac
 K F S K F W K Q Y S Y F S S I L Y H V E -

2461 aagtcataatttggattttccaccaaatctgaattttagacatacttgtagctcactt 2520
 -----+-----+-----+-----+-----+-----+-----+
 tttagtttaaacctaaaagggtggtttaagacttaaacatctgtatgaacatgcgagtgaa
 V K F G F S T K F * I C R H T C T L T C -

2521 gccccagatgccctcctctgtcctcattcttcttccacacaagcagctttttctaca 2580
 -----+-----+-----+-----+-----+-----+-----+
 cgggggtctacggaggagacaggagtaagaagagaggggtgtgttcgtcagaaaaagatgt
 P Q M P P L S S F F S P T Q A V F F Y S -

2581 gccagtaaggcagctctgtcrtggtagcagatgggtccattattctagggcttactctt 2640
 -----+-----+-----+-----+-----+-----+-----+
 cggtcattccgtcgagacagyaccatcgcttaccagggtataagatcccagaatgagaa
 Q * G S S V ? V A D G P I I L G S Y S L -

2641 tgtatgatgaaaagaatgtgttatgaatcggtgctgtcagccctgctgtcagaccttctt 2700
 -----+-----+-----+-----+-----+-----+-----+
 acatactacttttcttacacaatacttagccacgacagtcgggacgacagctctggaagaa
 Y D E K N V L * I G A V S P A V R P S S -

FIG.1E

1 tgggacaggcagctccggggtccgcggtttcacatcggaacacaaacagcggctggctctg 60
 -----+-----+-----+-----+-----+-----+
 accctgtccgtcgaggccccaggcgccaaagtgtagcctttgtttgtcgccgaccagac
 G Q A A P G S A V S H R K Q N S G W S G -
 61 gaaggaacctgagctacgagccgcggcggcagcggggcggcggggaagcgtatacctaata 120
 -----+-----+-----+-----+-----+-----+
 cttccttggactcgatgctcggcgcgcgcgtcgccccgcgcgccttcgcataatggatta
 R N L S Y E P R R Q R G G G E A Y T * S -
 121 ctgggagcctgcaagtgacaacagcctttgcggtccttagacagcttggcctggaggaga 180
 -----+-----+-----+-----+-----+-----+
 gacctcggacgttcactgttgtcggaacgccaggaatctgtcgaaccggacctcctct
 G S L Q V T T A F A V L R Q L G L E E N -
 181 acacatgaaagaaagaacctcaagaggctttgttttctgtgaaacagtatttctatacag 240
 -----+-----+-----+-----+-----+-----+
 tgtgtactttctttcttggagtctccgaaacaaaagacactttgtcataaagatatgtc
 T * K K E P Q E A L F S V K Q Y F Y T V -
 241 ttgctccaatgacagagttacctgcaccgttgcctacttccagaatgcacagatgtcttg 300
 -----+-----+-----+-----+-----+-----+
 aacgaggttactgtctcaatggacgtggcaacaggatgaaggctttacgtgtctacagac
 A P M T E L P A P L S Y F Q N A Q M S E -
 301 aggacaaccacctgagcaatactgtacgtagccagaatgacaatagagaacggcaggagc 360
 -----+-----+-----+-----+-----+-----+
 tcctgtttgggtggactcgttatgacatgcacgcgttactgttatctcttggcgtcctcg
 D N H L S N T V R S Q N D N R E R Q E H -
 361 acaacgacagacggagccttggccaccctgagccattatctaatggacgacccagggtta 420
 -----+-----+-----+-----+-----+-----+
 tgttgctgtctgcctcggaaccggcgggactcggtaatagattacctgctgggggtcccat
 N D R R S L G H P E P L S N G R P Q G N -
 421 actcccggcaggctgggtggagcaagatgaggaagaagatgaggagctgacattgaaatatg 480
 -----+-----+-----+-----+-----+-----+
 tgagggccgtccaccacctcgttctactccttcttctactcctcgactgtaactttatac
 S R Q V V E Q D E E E D E E L T L K Y G -
 481 gcgccaagcatgtgatcatgctctttgtccctgtgactctctgcatgggtgggtcgtgg 540
 -----+-----+-----+-----+-----+-----+
 cgcggttcgtacactagtagcagaaacagggacactgagagacgtaccaccaccagcacc
 A K H V I M L F V P V T L C M V V V V A -

FIG.2A

ctaccattaagtcagtcagctttttataccgggaaggatgggcagctaattctataccccat
 541 -----+-----+-----+-----+-----+-----+ 600
 gatggtaattcagtcagtcgaaaaatatgggccttcctaccgctcgattagatatggggta
 T I K S V S F Y T R K D G Q L I Y T P F -

 tcacagaagataccgagactgtgggccagagagccctgcactcaattctgaatgctgcca
 601 -----+-----+-----+-----+-----+-----+ 660
 agtgtcttctatggctctgacacccggctctcgggacgtgagttaagacttacgacgggt
 T E D T E T V G Q R A L H S I L N A A I -

 tcatgatcagtgctattgttgtcatgactatcctcctgggtggttctgtataaaatcacgggt
 661 -----+-----+-----+-----+-----+-----+ 720
 agtactagtcacagtaacaacagtactgtaggaggaccaccaagacatatattatgtcca
 M I S V I V V M T I L L V V L Y K Y R C -

 gctataaaggatcatccatgcctggcttattatcatctctattgttgcgttcttttttt
 721 -----+-----+-----+-----+-----+-----+ 780
 cgatattccagtaggtacggaccgaaataatagtagagataacaacgacagaagaaaaaa
 Y K V I H A W L I I S S L L L L F F F S -

 cattcattttacttgggggaagtgtttaaaccctataacgttgctgtggactacattactg
 781 -----+-----+-----+-----+-----+-----+ 840
 gtaagtaaatgaaccccttcacaaaattttggatatattgcaacgacacctgatgtaatgac
 F I Y L G E V F K T Y N V A V D Y I T V -

 ttgcactcctgatctggaattttgggtgtggtgggaatgatttccattcactggaaaggctc
 841 -----+-----+-----+-----+-----+-----+ 900
 aacgtgaggactagaccttaaaaccacaccacccttactaaaggtaagtgacctttccag
 A L L I W N F G V V F M I S I H W K G P -

 cacttcgactccagcaggcatatctcattatgattagtgccctcatggccctgggtgtttta
 901 -----+-----+-----+-----+-----+-----+ 960
 gtgaagctgaggtcgtccgtatagagtaataactaatcacgggagtagcgggaccacaaat
 L R L Q Q A Y L I M I S A L M A L V F I -

 tcaagtacctccctgaatggactgcgtggctcatcttggctgtgatttcagtatatgatt
 961 -----+-----+-----+-----+-----+-----+ 1020
 agttcatggagggtacttacctgacgcaccgagtagaaccgacactaaagtcataatactaa
 K Y L P E W T A W L I L A V I S V Y D L -

 tagtggctgttttgcgtcTgaaagggtccacttcAatatgctgggtgaaacagctcaggaga
 1021 -----+-----+-----+-----+-----+-----+ 1080
 atcaccgacaaaaacacaggctttccagggtgaagcatatcgaccaactttgtcgagtcctct
 V A V L R L K G P L H M L V E T A Q E R -

FIG.2B

1081 gaaatgaaacgctttttccagctctcattttactcctcaacaatgggtgtggttggtgaata
-----+-----+-----+-----+-----+-----+ 1140
ctttactttgcgaaaaaggctcgagagtaaatgaggagtgtgtaccacaccaaccacttat
N E T L F P A L I Y S S T M V W L V N M -
1141 tggcagaaggagacccggaagctcaaaggagagtatccaaaaattccaagtataatgcag
-----+-----+-----+-----+-----+ 1200
accgtcttctctgggccttcgagtttctctcataggtttttaagggttcattacgtc
A E G D P E A Q R R V S K N S K Y N A E -
1201 aaagcacagaaaaggagtcacaagacactgttgcagagaaatgatgatggcgggttcagt
-----+-----+-----+-----+-----+ 1260
tttcgtgtctttccctcagtggtctgtgacaacgtctcttactactaccgccaagtac
S T E R E S Q D T V A E N D D G G F S E -
1261 aggaatgggaagcccagagggacagtcacttagggcctcatcgctctacacctgagtcac
-----+-----+-----+-----+-----+ 1320
tccttacccttcgggtctcccgtcagtagatcccggagtagcgagatgtggactcagtg
E W E A Q R D S H L G P H R S T P E S R -
1321 gagctgtgtccaggaactttccagcagtatcctcgctgggtgaagaccagaggaagg
-----+-----+-----+-----+-----+ 1380
ctcgacgacaggctccttgaaaggctcgtcataggagcgaccacttctgggtctcctttccc
A A V Q E L S S S I L A G E D P E E R G -
1381 gagtaaaacttggattgggagatttcattttctacagtgttctgggttggtaaagcctcag
-----+-----+-----+-----+-----+ 1440
ctcattttgaacctaacctcttaaagtaaaagatgtcacaaagaccaaccatttcggagtc
V K L G L G D F I F Y S V L V G K A S A -
1441 caacagccagtgagactggaacacaaccatagcctgtttcgtagccatattaattgggt
-----+-----+-----+-----+-----+ 1500
gttgctcgggtcacctctgaccttggttggtatcggacaaagcatcggtataattaaccaa
T A S G D W N T T I A C F V A I L I G L -
1501 tgtgccttacattattactccttgccattttcaagaaagcattgccagctcttccaatct
-----+-----+-----+-----+-----+ 1560
acacggaaatgtaataatgaggaacggtaaaagtcttttcgtaacgggtcgagaaggtaga
C L T L L L L A I F K K A L P A L P I S -
1561 ccatcacctttgggcttggttttctactttgccacagattatcttgtaacgccttttatgg
-----+-----+-----+-----+-----+ 1620
ggtagtggaacccgaacaaaagatgaaacgggtgtctaatagaacatgtcggaaaaatacc
I T F G L V F Y F A T D Y L V Q P F M D -

FIG.2C

2161 agaatgggggaatggagaggtgggcaggggttccagcttccctttgatttttgctgcaga 2220
 -----+-----+-----+-----+-----+-----+
 tcttaccctttacctctccaccgctccccaaggctgaagggaactaaaaaacgacgtct
 N G E W R G G Q G F Q L P F D F L L Q T -

2221 ctcaccttttttaaatgagacttggtttccctctctttgagtcagtcacaaatagttaga 2280
 -----+-----+-----+-----+-----+-----+
 gagtaggaaaaatttactctgaacaaaaggggagagaaactcagttcagttttatcatct
 H P F * M R L V F P S L * V K S N M * I -

2281 ttgcctttggcaattcttcttctcaagcactgacactcattaccgtctgtgattgccatt 2340
 -----+-----+-----+-----+-----+-----+
 aacggaaaccgttaagaagaagagttcgtgactgtgagtaatggcagacactaacggtaa
 A F G N S S S Q A L T L I T V C D C H F -

2341 tcttcccaaggccagctctgaacctgaggttgctttatcctaaaagttttaacctcaggtt 2400
 -----+-----+-----+-----+-----+-----+
 agaagggttccggtcagacttggaactccaacgaaataggattttcaaaattggagtccaa
 F P R P V * T * G C F I L K V L T S G S -

2401 ccaaattcagtaaatTTTggaaacagtacagctatttctcatcaattctctatcatgttg 2460
 -----+-----+-----+-----+-----+-----+
 ggTTtaagtcattttaaaccttttgctatgtcgataaagagtagTTaagagatagtacaac
 K F S K F W K Q Y S Y F S S I L Y H V E -

2461 aagtcacaaattTggattttccaccaaaattctgaatttgtagacatacttgtagctcactt 2520
 -----+-----+-----+-----+-----+-----+
 ttcagtttaaacctaaaagggtggTTtaagacttaaacatctgtatgaacatgcgagtgaa
 V K F G F S T K F * I C R H T C T L T C -

2521 gccccagatgcctcctctgtcctcattcttctctccacacaagcagctttttctaca 2580
 -----+-----+-----+-----+-----+-----+
 cgggggtctacggaggagacaggagtaagaagagaggggtgtgttcgtcagaaaaagatgt
 P Q M P P L S S F F S P T Q A V F F Y S -

2581 gccagtaaggcagctctgtcrTggtagcagatggTccattattctagggtcttactctt 2640
 -----+-----+-----+-----+-----+-----+
 cggTcattccgtcgagacagyaccatcgtctaccagggtaaTaagatcccagaatgagaa
 Q * G S S V ? V A D G P I I L G S Y S L -

2641 tgtatgatgaaaagaaTgtgttatgaatcggtgctgtcagccctgctgtcagaccttctt 2700
 -----+-----+-----+-----+-----+-----+
 acatactactttttcttacacaatactttagccacgacagtcgggacgacagctctggaagaa
 Y D E K N V L * I G A V S P A V R P S S -

FIG.2E

```

2701 ccacagcaaatgagatgtatgccccaaagcggtagaattaaagaagagtaaaatggctgtt
-----+-----+-----+-----+-----+-----+ 2760
gggtgctgtttactctacatacgggtttcgccatcttaatttcttctcattttaccgacaa
  T A N E M Y A Q S G R I K E E * N G C * -

2761 gaagc
----- 2765
cttcg
  S -

```

FIG.2F